LISTING OF CLAIMS:

The current status of the claims currently in this application is as follows:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Currently Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector;

~~an~~ a unitary encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

die attachment material to facilitate bonding of the connector to a substrate.

9. (Canceled)

10. (Currently Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

~~an~~ a unitary encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium;

wherein the electrical connector includes a conductive plug within a microelectronic device.

11. (Original) The optical coupler of claim 10, wherein the electrical connector comprises a plurality of conductive plugs within a microelectronic device.

12. (Canceled)

13. (Previously Presented) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide;

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon; and

an electrical connector formed at least partially within the encapsulant.

14. (Original) The optical coupler of claim 13, wherein the electrical connector comprises a lead of a leadframe.

15. (Original) The optical coupler of claim 13, wherein the connector comprises a wire.

16. (Previously Presented) The optical coupler of claim 13, wherein the waveguide comprises a plurality of optical fibers fused together.

17. (Previously Presented) The optical coupler of claim 13, wherein the waveguide comprises at least one fiber.

18. (Currently amended) An optical coupler comprising:

a waveguide;

an encapsulant surrounding and in adherent contact with at least a portion of the waveguide; and

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon;

wherein at least a portion of the encapsulant comprises a transfer mold compound.

19. (Previously Presented) The optical coupler of claim 8, wherein at least a portion of the substrate comprises a ceramic material.

20. (Previously Presented) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide;

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon; and

a substrate comprising electrical connectors formed as electrical traces and conductive plugs.

21. (Previously Presented) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide; and

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon;

wherein the guide groove is formed of conductive material.

22. (Previously Presented) An optical transmission system comprising the optical coupler of claim 20.

23. (Currently amended) An optical interconnect system comprising:

an optical coupler comprising a waveguide, an encapsulant, and an electrical connector that is bent with one end adapted for the attachment of a flip chip photonic device, all formed at least partially within the encapsulant;

a fiber optic cable attached to the optical coupler; and

a substrate electrically coupled to the coupler.

24. (Original) The optical interconnect system of claim 23, wherein the optical coupler comprises a guide groove and the fiber optic cable comprises a guide pin configured to be received by the guide groove.

25. (Original) The optical interconnect system of claim 23, further comprising an optoelectronic device electrically coupled to the optical coupler, such that the optoelectronic device forms an electrical connection to the substrate and an optical connection to a fiber of the fiber optic cable.

26. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a vertical cavity surface emitting laser.

27. (Original) The optical interconnect system of claim 25, wherein vertical cavity surface emitting laser is coupled to the optical coupler using flip-mounting technology.

28. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a photodetector.

29. (Previously Presented) The optical interconnect system of claim 28, wherein the photodetector is coupled to the optical coupler using flip-chip mounting technology.

30. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a vertical cavity surface emitting laser and the system further comprises a photodetector.

31. (Original) The optical interconnect system of claim 30, wherein the vertical cavity surface emitting laser is coupled to the optical coupler using die attach technology and the photodetector is mounted to the optical coupler using die attach technology.

32. (Original) The optical interconnect system of claim 25, further comprising solder interposed between the optoelectronic device and the optical coupler.

33. (Currently amended) The optical interconnect system of claim 23, wherein the waveguide comprises a fused faceplate ~~of~~ or a bundle of optical fibers.

34. (Original) The optical interconnect system of claim 23, wherein the electrical connector comprises a lead portion of a leadframe.

35. (Original) The optical interconnect system of claim 23, further comprising a transparent gel attached to a portion of the optical coupler.

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Previously presented) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors;

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide with the same contiguous encapsulant; and

polishing an end of the waveguide.

42. (Previously Presented) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors;

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide; and

singulating.

43. (Canceled)

44. (Canceled)

45. (Canceled)

46. (Previously Presented) The method of forming an optical coupler of claim 42, further comprising the step of attaching guide sleeves to a portion of the electrical connectors.

47. (Previously Presented) The method of forming an optical coupler of claim 42, further comprising the step of forming a ground plane coupled to a portion of the electrical connectors.

48. (Original) An optical transceiver comprising:

an electrical connector;

a photonics component flip-chip mounted attached to a first portion of the electrical connector;

a substrate attached to a second portion of the electrical connector;

an optical transmission medium made of fiber bundles disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within a portion of the encapsulant.

49. (Original) An optical transceiver comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a transmission medium disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

50. (Original) An optical system comprising:

an electrical connector;

a photonics components flip-chip mounted to a first portion of the electrical connector;

a printed circuit board electrical coupled to the electrical connector;

a transmission medium transparent in the visible and mid infrared regions of the radiation spectrum disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium.

51. (Original) An optical coupler for wavelength division multiplexing comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a wavelength multiplexed transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

52. (Original) An optical coupler for wavelength division demultiplexing comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a wavelength demultiplexing transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant..

53. (Previously Presented) An optical transceiver comprising:

an electrical connector;

an optoelectronic component mounted attached to a first portion of the electrical connector;

a substrate attached to a second portion of the electrical connector;

an optical transmission medium made of fiber bundles disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within a portion of the encapsulant.

54. (Previously Presented) An optical transceiver comprising:

an electrical connector;

an optoelectronic component mounted to the electrical connector;

a transmission medium disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

55. (Previously Presented) An optical system comprising:

an electrical connector;

an optoelectronic component mounted to a first portion of the electrical connector;

a printed circuit board electrical coupled to the electrical connector;

a transmission medium transparent in the visible and mid infrared regions of the radiation spectrum disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium.

56. (Previously Presented) An optical coupler for wavelength division multiplexing comprising:

an electrical connector;

a optoelectronic component mounted to the electrical connector;

a wavelength multiplexed transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant..

57. (Previously Presented) An optical coupler for wavelength division demultiplexing comprising:

an electrical connector;

a optoelectronic component mounted to the electrical connector;

a wavelength demultiplexing transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant..

58. (Currently amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

placing a waveguide adjacent and parallel to at least a portion of the electrical connectors; and

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide with the same contiguous encapsulant, thereby maintaining said at least portion of electrical connectors and the waveguide in a fixed space relationship.

59. (Previously Presented) The method of forming the optical coupler of claim 58, further comprising the step of forming guides.

60. (Previously Presented) The method of forming the optical coupler of claim 59, wherein the step of forming guides comprises bending a portion of a conductive plate to form a conduit.

61. (Previously Presented) The method of forming the optical coupler of claim 58, wherein the step of creating electrical connectors comprises providing a leadframe and bending the leads.

62. (Previously Presented) The method of forming the optical coupler of claim 58, wherein the step of creating electrical connectors comprises patterning a surface of a plate of conductive material, etching the plate of conductive material to form conductive leads, and bending the conductive leads.

63. (Previously Presented) The method of forming the optical coupler of claim 58, further comprising the step of polishing an end of the waveguide.

64. (Previously Presented) The method of forming the optical coupler of claim 58, further comprising the step of singulating.

65. (Previously Presented) The method of forming the optical coupler of claim 58, further comprising the step of coating an end of the electrical connectors with a conductive material.

66. (Previously Presented) The method of forming the optical coupler of claim 65, wherein the step of coating an end comprises attaching a conductive tape to an end.

67. (Previously Presented) The method of forming the optical coupler of claim 65, wherein the step of coating an end comprises plating conductive material on the end.

68. (Previously Presented) The method of forming the optical coupler of claim 58, further comprising the step of attaching guide sleeves to a portion of the electrical connectors.

69. (Previously Presented) The method of forming an optical coupler of claim 58, further comprising the step of forming a ground plane coupled to a portion of the electrical connectors.

70. (Currently amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

an encapsulant surrounding and in adherent contact with at least a portion of the connector and at least a portion of the transmission medium, thereby maintaining the electrical connector and the optical transmission medium in a fixed space relationship.

71. (Currently amended) An optical coupler for coupling an optoelectronic device to an optical fiber having a first core diameter, comprising:

an electrical connector ;

an optical transmission medium comprising fused optical fibers having a core diameter less than said first core diameter and disposed proximate the electrical connector; and

an encapsulant surrounding and in adherent contact with at least a portion of the connector and at least a portion of the transmission medium.

72. (Previously Presented) The optical coupler of claim 71,

wherein each of the fused optical fibers have a core diameter smaller than about 50 microns.

73. (Previously presented) An optical coupler as in claim 70,

wherein the electrical connector includes a conductive lead having a first end and a second end, disposed to conduct electric current in a direction substantially parallel to the optical transmission medium.

74. (Previously Presented) An optical coupler as in claim 70,

wherein the encapsulant includes silica-filled epoxy material.

75. (Previously Presented) The optical coupler of claim 70, further comprising guides configured to receive guide pins attached to fiber ribbon.

76. (Previously Presented) The optical coupler of claim 70, further comprising a ground plane formed on a lower portion of the coupler.

77. (Previously Presented) The optical coupler of claim 70, further comprising:

die attachment material to facilitate bonding of the connector to a substrate.

78. (Previously Presented) The optical coupler of claim 70, further comprising:

conductive tape configured to facilitate coupling the connector to an optoelectronic device.

79. (Previously Presented) The optical coupler of claim 70, wherein the electrical connector includes a conductive plug within a microelectronic device.

80. (Previously Presented) The optical coupler of claim 79, wherein the electrical connector comprises a plurality of conductive plugs within a microelectronic device.

81. (Previously Presented) An optical coupler comprising:

an electrical connector;

an optical transmission medium juxtaposed with the electrical connector, an optical path of the optical transmission medium being parallel to and coextensive with at least a portion of the electrical connector; and

an optoelectronic device attached to said electrical connector transverse to the optical path and adjacent one end of the optical transmission medium.

82. (Previously Presented) An optical coupler as in claim 81, wherein the optoelectronic device is a VCSEL.

83. (Previously Presented) An optical coupler as in claim 81, further comprising:

an optically transparent gel interposed between the optical transmission medium and the optoelectronic device.

84. (Previously Presented) An optical coupler as in claim 83, wherein said optically transparent gel is index matched to the index of refraction of the transmission medium and to a portion of the optoelectronic device.

85. (Previously Presented) An optical coupler as in claim 81, further comprising:

an alignment guide disposed longitudinally in parallel with the optical path.

86. (Previously Presented) An optical coupler comprising:

an electrical connector;

an optical transmission medium attached to the electrical connector, the optical path of the optical transmission medium being parallel to at least a portion of the electrical connector such that a surface portion of said electrical connector and an end surface of the optical transmission medium form a substantially coplanar surface; and

an optoelectronic device attached to the surface portion of said electrical connector and adjacent the optical transmission medium at said coplanar surface.

87. (Previously Presented) An optical coupler as in claim 86, wherein the optoelectronic device is a VCSEL.

88. (Previously Presented) An optical coupler as in claim 86, further comprising:

an optically transparent gel interposed between the optical transmission medium and the optoelectronic device.

89. (Previously Presented) An optical coupler as in claim 88, wherein said optically transparent gel is index matched to the index of refraction of the transmission medium and to a portion of the optoelectronic device.

90. (Previously Presented) An optical coupler as in claim 86, further comprising:

an alignment guide disposed longitudinally in parallel with the optical path.

91. (Previously Presented) An optical coupler as in claim 86, wherein the optoelectronic device is a photo detector.

92. (Previously Presented) An optical coupler as in claim 81, wherein the optoelectronic device is a photo detector.